WHEATON®

Roller Apparatus

R2P™ 2.0 and the WHEATON Standard Roller for Adherent Cell Culture

The First Single Use Bioreactor

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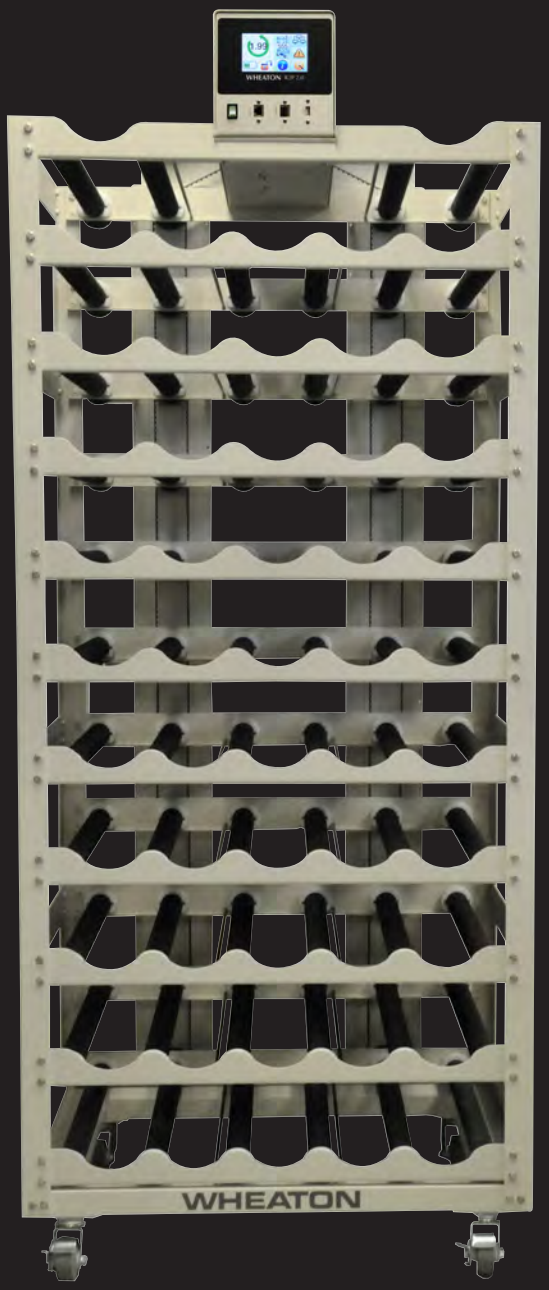
R2P™ 2.0 and the **WHEATON** Standard Roller for Adherent Cell Culture



The First Single Use Bioreactor

We have updated and enhanced our process control systems for our production scale roller apparatus. We understand the importance of our culture systems to the vaccine and biologics industries; therefore, customer input was a key driver governing the upgrades. The systems utilize current technology to facilitate implementation into new production installations with networked equipment. The systems also maintain backwards compatibility for existing operations. This effort will also enable better control and monitoring for research or pilot roller culture installations.

The new roller apparatus feature:

- A color touch screen or digital display
- An icon driven interface with intuitive menus
- The surface mount gold plated electrical connections for better reliability in high temperature environments
- Updated industry standard networking communications protocols and connections
- Lower power consumption for longer battery run time and a safer design
- Backwards compatibility for continuing support of existing installations
- Retrofit kits available to update older WHEATON systems or unsupported systems
- Maintenance free brushless DC motors for years of trouble-free operation

WHEATON has a long history of designing, building and supporting cultivation equipment. The R2P 2.0 and the WHEATON Standard Roller are the next logical steps.

R2P™ 2.0

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R2P™ 2.0 Roller Apparatus for Adherent Cell Culture

Available in Top or Bottom Mounted Countrol

- Robust **touch screen interface** that is easy to view from a distance
- Readily recognized **icons for intuitive navigation**
- Digitally controlled **maintenance free motor accurate** to 0.01 RPM
- Capable of **remote control and monitoring** through SCADA systems
- **Multiple decking and capacity configurations** available for process flexibility
- **USB Downloadable** System Event Log

Specifications

Capacity:	5-88 Positions
Bottle Speed (110mm Diameter Bottle, other speeds available):	0.25-8.1 RPM
Accuracy:	0.01 RPM
Drive:	Belt Driven
Motor Type:	Brushless DC
Rotation Direction:	Clockwise, Counter-Clockwise and Rocking
Belt Break Alarm:	Included
Options:	Temperature Monitoring and Battery Backup
Remote Communication:	Yes, Modbus® Protocol and WHEATON Protocol via Ethernet TCP/IP and RS422/485
Humidity:	80% up to 31°C
Operating Temperature:	10 to 40°C
Electrical:	100-240 VAC, 50/60 Hz, 35W

Profile

Main Screen

Temperature Alarm

Bottle Speed

Factory Setup

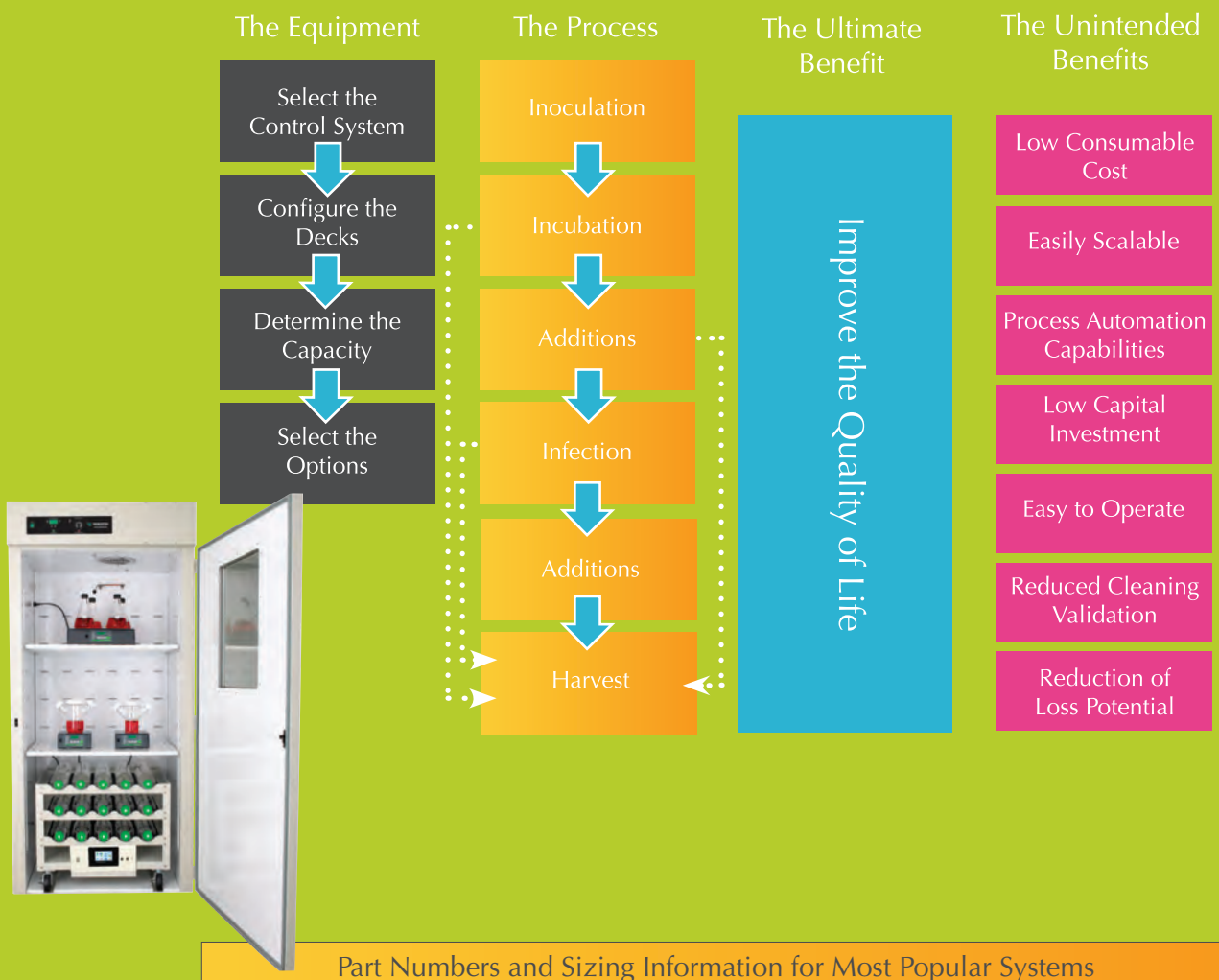
Say Goodbye to Quick Start Cards and User Manuals

The R2P 2.0 touch screen was designed for use directly out of the box. There are four types of screens for system navigation. The **Main Screen** displays all of the most important process conditions including bottle speed, bottle direction, alarms, unit identification number, power status, and the network status. From the main screen the user can access the general **Setup Screen**.

The user can configure system parameters that are frequently accessed from the Setup Screen including speed ramp time and the event log. All parameters are changed in **Configuration Screens** that feature large numeric keypads and intuitive operation. The Setup Screen also allows access to the **Factory Screen** for system parameters that are established during factory assembly and testing. All screens can access an onboard user guide that details the function of each Icon. Don't worry we will still include the user manual; you may just never need it.

WHEATON® R2P™ 2.0 Roller Apparatus and the Standard Roller

The First Single Use Bioreactor



Part Numbers and Sizing Information for Most Popular Systems

Part Number	# Positions	# Decks	Width (in / cm)	Depth (in / cm)	Height (in / cm)	Weight (lb / kg)	# of Bottle Positions	Control System
Bottom Drive Production Spacing								
WRBPR5010-A	5	1	31 / 79	25 / 63	14 / 35	52 / 24	5	R2P 2.0
WRBPR5030-A	5	3	31 / 79	25 / 63	26 / 65	85 / 39	15	R2P 2.0
WRBPF5110-A	5	11	31 / 79	25 / 63	74 / 187	217 / 99	55	R2P 2.0
WRBPF8110-A	8	11	47 / 120	25 / 63	74 / 187	360 / 167	88	R2P 2.0
Bottom Drive Modular Spacing								
WRBMR5010-A	5	1	30 / 76	25 / 63	14 /34	70 / 32	5	R2P 2.0
WSBMR5010-A	5	1	30 / 76	25 / 63	14 /34	70 / 32	5	Standard
WRBMR5030-A	5	3	30 / 76	25 / 63	29 / 74	112 / 51	15	R2P 2.0
WSBMR5030-A	5	3	30 / 76	25 / 63	29 / 74	112 / 51	15	Standard
WRBMR5070-A	5	7	30 / 76	25 / 63	57 / 145	196 / 89	35	R2P 2.0
WSBMR5070-A	5	7	30 / 76	25 / 63	57 / 145	196 / 89	35	Standard
WRBMR5090-A	5	9	30 / 76	25 / 63	71 / 179	238 / 108	45	R2P 2.0
WSBMR5090-A	5	9	30 / 76	25 / 63	71 / 179	238 / 108	45	Standard
Top Drive Production Spacing								
WRTPF5110-A	5	11	31 / 79	25 / 63	75 / 190	250 / 113	52	R2P 2.0
WSTPF5110-A	5	11	31 / 79	25 / 63	75 / 190	250 / 113	52	Standard
WRTPF8110-A	8	11	47 / 120	25 / 63	75 / 190	350 / 159	85	R2P 2.0
WSTPF8110-A	8	11	47 / 120	25 / 63	75 / 190	350 / 159	85	Standard

The First Single Use Bioreactor

Configuration Matrix for Easy Ordering

Ordering Information

WHEATON specializes in standard and customized roller apparatus units. The part numbering system below allows for the configuration of a standard system. The main components that make up a unit include the control system, the size and type of roller bottle decks and system options. There is also a table listing the most commonly manufactured roller apparatus. If you have any questions about custom bottle sizes, rotation speeds or standard systems, please contact your WHEATON Representative.

Example: W R T P F 5 11 1 - A

Control System

R2P 2.0
Advanced touch screen with remote communications and alarms
STANDARD
Digitial display

Control System Type
R - R2P 2.0
S - Standard

Top Mounted
Ideal design for rigorous cleaning and ceiling mounted mounted connections
Bottom Mounted
Ideal design for easy access and floor mounted connections

Control System Location
T - Top Mounted
B - Bottom Mounted

Decks

Production (6"/152mm)
Smaller spacing between decks to allow for more bottles per area
Modular (7.125"/181mm)
Larger spacing between decks to allow easier removal and replacement of bottles

Spacing
P - Production
M - Modular

Fixed
Fixed size with single piece uprights used for production and lighter weight due to less hardware
Removable
Removable decks for flexible design

Deck Type
F - Fixed
R - Removable

Plug Style
A - North America - 120 VAC
B - Japan - 100 VAC
C - Continental Europe - 230 VAC
D - United Kingdom - 230 VAC
F - Australia/China - 240 VAC
G - Italy/Chile -230 VAC
J - India - 230 VAC

Capacity

5
Five placement areas per deck allows for use with an upright incubator
8
Eight place is used for large scale production type installations

Positions Per Deck
5
8

01-11: Number of Decks
Modular spaced units have a maximum of 9 decks, production spaced units have a maximum of 11 decks

No. of Decks
01 - 11

Options

0
No Options Included
1
Options Included
WHEATON Standard Roller options include belt break alarm and battery backup
R2P 2.0 options include temperature monitoring and alarms (2 probes) and battery backup (Belt break alarm included in base offering)

Options
0
1

Back of Unit

The First Single Use Bioreactor
WHEATON® Standard Roller Apparatus

Product Specifications
Standard Roller

- Smooth **ramping digitally controlled** rotation accurate to 0.1 RPM
- **Maintenance free precision** brushless motor
- **Bright digital display** for easy operation
- **Multiple decking and capacity configurations** available for process flexibility

Specifications

Capacity:	5-88 Positions
Bottle Speed (110mm Diameter Bottle, other speeds available):	0.25-8.1 RPM
Bottle Diameter:	108-121mm
Bottle Length:	Up to 550mm
Accuracy:	0.1 RPM
Drive:	Belt Driven
Motor Type:	Brushless DC
Rotation Direction:	Clockwise and Counter-Clockwise
Options:	Belt Break Alarm and Battery Backup
Remote Communication:	Dry Contact Relay Alarm
Humidity:	80% up to 31°C
Operating Temperature:	10 to 40°C
Electrical:	100-240 VAC, 50/60 Hz, 35W

Complimentary **WHEATON**® Products
Peristaltic Pumps • Silicone Tubing • Incubators • Vented Caps • Roller Bottles • Bench Top Rollers

Peristaltic Pumps

UniSpense® PRO

OmniSpense® ELITE

Incubators
Standard & CO_2

Vented Caps

Roller Bottles

Silicone Tubing

Micro Cassette

Platinum Cured

Peroxide Cured

Bench Top Roller

The First Single Use Bioreactor
Monitoring Software

CART2 Control Monitor and Recording Software

CART$_2$ Screen

- **Remotely monitors and controls** up to 255 R2P and R2P 2.0 rollers
- **Records** all settings, changes, alarms and communication loss
- **Password-protected** user levels maintain security
- Can be **easily added to R2P and R2P 2.0** at any time
- **Conforms to** UL, CSA and CE **Laboratory Standards**

The WHEATON CART2 System precisely controls rotating speeds of up to 255 separate roller units. Each unit is monitored for rotation, speed deviation and communication. This system provides the perfect solution for GMP or FDA requirements.

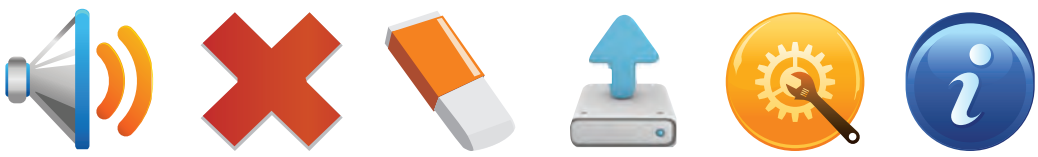
CART2 and View Log Software with the Network Interface

Network Interface is a single-line network adapter for up to 255 R2P units.

Cat. No.	Plug Style	Voltage	Qty/Case
W348902-A	North America	120 VAC	1
W348902-B	Japan	100 VAC	1
W348902-C	Continental Europe	230 VAC	1
W348902-D	United Kingdom	230 VAC	1
W348902-F	Australia/China	240 VAC	1
W348902-G	Italy/Chile	230 VAC	1
W348902-J	India	230 VAC	1

Computer Requirements

- IBM Pentium® PC or compatible
- 32 MB of RAM, minimum
- Microsoft® Windows® 2000, XP, Vista, 7
- One free serial port
- 10 MB of free hard drive space, minimum



The First Single Use Bioreactor
Roller Options Information

Belt Break Alarm (Included with R2P 2.0)

The **Belt Break Alarm employs two magnetic sensors** to ensure that all main pulleys are rotating on the unit. This is included on all R2P 2.0 Roller Apparatus.

Battery Backup

The **Battery Backup protects cells during transport,** processing and power outages. The unit automatically and seamlessly switches over to battery power to provide rotation for 12 – 24 hours. Bottom mounted control systems house larger, longer lasting batteries.

Temperature Monitoring/Alarm Option (R2P 2.0 Only)

This option **includes two precision temperature probes** for real time temperature monitoring and deviation alarms. The temperature is displayed in the temperature calibration screen or on the screen saver for quick confirmation of optimal operating conditions.

Deck Kit

Deck Kit For Modular Spaced Systems

The deck kit is designed for modular systems with removable decks. Modular systems have 7.125″ deck spacing for easy removal and replacement of bottles. These are kits designed for customer installation.

Deck Kit For Production Spaced Systems

The deck kit is designed for production systems with removable decks. Production systems have 6″ deck spacing to maximize system capacity. These are kits designed for customer installation.

Cat. No.	Description
W348890V2	WHEATON Standard Roller Top Drive System Options with Belt Break Alarm and Battery Backup
W348891V2	WHEATON Standard Roller Bottom Drive System Options with Belt Break Alarm and Battery Backup
W348892V2	R2P 2.0 Roller Top Drive System Options with Battery Backup and Temperature Sensors (Belt Break Alarm is already included with unit)
W348893V2	R2P 2.0 Roller Bottom Drive System Options with Battery Backup and Temperature Sensors (Belt Break Alarm is already included with unit)
W348887	Deck Installation Kit for Modular (7.125") Spaced System (Units have a maximum capacity of 9 decks)
W348889	Deck Installation Kit for Production (6") Spaced System (Units have a maximum capacity of 11 decks)

WHEATON®

1501 North 10th Street | Millville, New Jersey 08332-2038 | USA

www.wheaton.com

USA & Canada 800.225.1437

International 856.825.1100

Worldwide Fax 856.825.1368

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